Disposal Element

Goal of This Planning Element:

To ensure that solid waste treatment and disposal facilities serving the City of Atlanta meet regulatory requirements and are in place when needed to support and facilitate effective solid waste handling programs today and for the subsequent 10-year period, thereby maintaining and enhancing the quality of life of the residents within the area, and anticipates regional needs.

This section provides information on the current and future disposal practices in the City of Atlanta for solid waste. The current disposal program being used by the City is adequate for the 10-year planning period and meets the State's required assurance for 10-year disposal capacity. However, the City understands that its current disposal program is a short-term solution, and that future disposal options must be evaluated and considered for the long-term management of the City's solid waste. This section also includes a contingency strategy for the interim disposal of the City's solid waste in the event that the primary disposal option becomes interrupted.

This section focuses on disposal options and technologies. For a discussion on the siting of solid waste handling facilities, please refer to Section 6, Land Limitation Element, which discusses the siting process that both the City and private entities will follow.

5.1 Inventory of Solid Waste Disposal Practices

In 1991, the City of Atlanta ceased disposing of its waste to its four City-owned landfills: East Confederate Avenue Municipal Landfill, Gun Club Road Municipal Solid Waste Landfill, Key Road Municipal Solid Waste Landfill, and Cascade Road Municipal Landfill. Although several of these landfills still had remaining capacity, they were closed and the City continues post-closure care activities on them. Post-closure care involves groundwater, stormwater, and air monitoring; operation and maintenance activities; reporting to the State; and any necessary corrective actions. Post-closure care activities must be conducted for at least 30 years after the closure date.

After the City ceased to use its own landfills, it began disposing of its waste to Waste Management Incorporated's Live Oak Landfill in DeKalb County. The Live Oak Landfill was closed at the end of 2004. The City now has short-term, renewable contracts with privately owned landfills for waste disposal. The contracts consist of 1-year term contracts, with up to five 1-year renewals. Due to the location of these landfills, the City is using local transfer stations to minimize hauling distance and cost. A transfer station is a facility with a designated receiving area where waste collection vehicles deliver the collected waste. The waste is often compacted, then loaded into larger vehicles for shipment to a final disposal site, which is typically a landfill.

In the City of Atlanta, C&D debris is collected by both private haulers and the City of Atlanta and is disposed of in private C&D landfills. The City of Atlanta previously sent

C&D debris to Live Oak Landfill, an MSW landfill. Since the City is now currently using transfer stations, which do not accept C&D debris, the City will now begin using private dedicated C&D landfills for C&D disposal. The C&D landfills in Atlanta operate as a free market and do not require contracts to accept C&D debris. In 2003, approximately 95,341 tons of C&D debris were disposed by the City of Atlanta and private haulers.

There are a variety of C&D landfills in the Atlanta area that can be utilized for C&D disposal. A few of these landfills are Rogers Lake Road C&D and APAC/GA Donzi Lane Landfills in DeKalb County, Eagle Point Landfill in Forsyth County, and Reliable Tire Service Landfill in Hall County. Small amounts of C&D debris are also sent to MSW landfills; however, MSW landfills charge a higher tipping fee to accept C&D debris when compared to dedicated C&D landfills. This may be attributed to the increased use of dedicated C&D landfills for C&D disposal over the past 3 years (see Section 2.1.5, Construction and Demolition (C&D) Debris Generation).

5.1.1 Solid Waste Transfer Stations (Existing Program)

Beginning in 2005, the City is using Advanced Disposal Services' Welcome All Transfer Station in College Park, and Republic Services of Georgia's United Waste Service, Inc., Lee Industrial Transfer Station in Austell, for transport and disposal of solid waste to privately owned landfills in Forsyth and Butts Counties in Georgia.

Of the collected solid waste from the City of Atlanta, 20 percent of the waste will be delivered to **Advanced Disposal's Welcome All Transfer Station**. Welcome All Transfer Station is located at 5225 Welcome All Road, in College Park, Georgia. The Welcome All Transfer Station uses Eagle Point Landfill, located at 8880 Old Federal Road, in Ball Ground (Forsyth County), GA, for the disposal of its waste.

The remaining 80 percent of the City's collected solid waste will go to the **Republic Services' United Waste Service, Inc. Lee Industrial Transfer Station**, located at 7140 Delta Circle, in Austell, Georgia. Lee Industrial Transfer Station sends its solid waste to Pine Ridge Landfill located at 105 Bailey Jester Road, in Griffin (Butts County), Georgia.

5.1.2 Landfills (Existing Program)

Eagle Point Landfill is privately owned and operated by Federal Road, LLC of Jacksonville, Florida. The facility is a Class I municipal solid waste disposal facility permitted to dispose of municipal solid waste, C&D waste, industrial process waste, pollution control waste, and sludge waste. The facility cannot accept hazardous and unacceptable waste as defined by Federal and State regulations. Eagle Point Landfill has a total of 29,403,000 CY of total airspace (minus landfill cap). The permitted site is 577 acres with a disposal footprint of 163 acres. The vast majority of the property is surrounded by conservation easements (over 113 acres), which provide a forested buffer from existing buildings and roadways. Based on this permitted capacity and a disposal rate of 1,500 tons per day, the landfill has a life expectancy of 46 years.

Pine Ridge Landfill is a privately owned and operated by United Waste Service, Inc., a locally managed, wholly owned subsidiary of Republic Services, Inc. Pine Ridge Landfill is a Subtitle D approved and permitted landfill, which can accept household, commercial, and industrial waste; construction and demolition debris; land clearing materials, as well as

contaminated soils; asbestos; sludge; and other pre-approved non-hazardous wastes. Covering 101 acres, Pine Ridge Landfill has over 40 million CY of total airspace and an expected life of over 30 years.

Table 5-1 provides a list of the disposal facilities to be used during the planning period.

5.1.3 Assurance of 10-Year Disposal Capacity

The City has written commitments from the owners of the disposal facilities certifying sufficient capacity for the City of Atlanta's solid waste over the 10-year planning period. These commitments are provided in Appendix C. Table 5-2 provides information on the disposal capacity assurance from the two disposal facilities that the transfer stations will be using.

5.1.4 Assessment

The City's current use of landfills for disposal of its solid waste will be adequate for the 10-year planning period and will meet the State's required assurance for 10-year disposal capacity. However, the City understands that the use of landfills is a short-term solution, and that other disposal options must be evaluated and considered for the long-term management of the City's solid waste. The other disposal options that will be evaluated by the City are listed in Section 5.3, Needs and Goals.

Due to the increased development within the City of Atlanta over the past decade and the fact that C&D debris account for a substantial portion of the City's overall waste stream, the City of Atlanta will research the need for a C&D debris recycling initiative. The City will utilize C&D debris recycling initiatives to maximize C&D debris diversion, and then will utilize C&D landfills for the remainder of the C&D debris that cannot be recycled. More detailed information on C&D recycling initiatives were provided in Section 3.5.3.6, C&D Recycling.

5.1.5 Contingency Strategy

In the event that the current disposal option becomes interrupted, the City will use other existing regional transfer stations for the transfer and disposal of its solid waste. There are approximately 64 active transfer stations in the greater Atlanta region that the City could use. This would be handled through either an emergency contract or a re-bidding process. The City can deliver solid waste directly to other landfills in the State, if necessary.

5.2 Inventory of Thermal Treatment Disposal Practices (Existing Programs)

The City does not utilize thermal treatment technology to dispose of its solid waste. Collected yard trimmings from the residential yard waste collection program are processed in a chipping, grinding, and staging area at the Hartsfield Solid Waste Reduction Plant, and then sent to various mills that use the processed yard waste as boiler fuel.

Sludge generated from Water and Wastewater Treatment Plants in the City of Atlanta consists of two portions – (1) a biosolids portion, and (2) a non-biosolids portion, which

TABLE 5-1 Inventory of Disposal Facilities to be Used by the City of Atlanta during the Planning Period (2005 – 2014)

Facility Name	Facility Address	Owner/ Operator	Facility Type	Types of Waste Accepted	Transfer Station Used To Support Landfill aste Accepted Owner/Address		Remaining Life (Years) ¹
Eagle Point Landfill	8880 Old Federal Rd. Ball Ground, GA 30107	Federal Road, LLC	Landfill	Municipal Solid Waste, C&D Waste, Industrial Process Waste, Pollution Control Waste, Aboveground and Underground Storage Tanks (UST/AST) Contaminated Soils, Sludge Waste, Asbestos Containing Waste, Solidified Liquid Waste Cannot accept hazardous and unacceptable waste as defined by federal and State regulations	Welcome All Transfer Station Advanced Disposal, Inc. 5225 Welcome All Rd. College Park, GA 30349	23,609,066 ²	35 ²
Pine Ridge Landfill	105 Bailey Jester Rd. Griffin, GA 30223	United Waste Service, Inc.	Landfill	Household, Commercial and Industrial Waste, C&D Debris, Land Clearing Materials, Contaminated Soils, Asbestos, Sludge, and Other Pre-Approved Non- Hazardous Wastes	Lee Industrial Transfer Station Republic Services of Georgia, LLP and United Waste Service, Inc. 7140 Delta Cir. Austell, GA 30168	37,491,860 ³	38 ³

Notes:

¹ Remaining capacity and life of landfills does not include solid waste from the City of Atlanta for the planning period. This information is provided in Table 5-2.
2 Beginning in 2004. Source: List of 2003 Landfill Remaining Capacity, Georgia Environmental Protection Division.
3 As of November 30, 2004. Assumes landfill accepts 2,000 tons per day and the facility's compaction ratio. Source: Republic Services of Georgia Disposal Capacity Certification Letter, March 29, 2004.

TABLE 5-2 Disposal Assurance Capacity for the City of Atlanta for the 10-Year Planning Period

	Year 1 (2005)	Year 2 (2006)	Year 3 (2007)	Year 4 (2008)	Year 5 (2009)	Year 6 (2010)	Year 7 (2011)	Year 8 (2012)	Year 9 (2013)	Year 10 (2014)
Eagle Point Landfill Federal Road, LLC 8880 Old Federal Rd. Ball Ground, GA 30107						$\langle \rangle$		7		
Capacity Assured (CY) ¹	23,609,066	22,934,960	22,260,854	21,586,748	20,912,642	20,238,536	19,564,430	18,890,324	18,216,218	17,542,112
Pine Ridge Landfill United Waste Service, Inc 105 Bailey Jester Rd. Griffin, GA 30223	S.			7						
Capacity Assured (CY) ²	37,491,860	35,112,340	32,732,820	30,353,300	27,973,780	25,594,260	23,214,740	20,835,220	18,455,700	16,076,180

Sources:

Advanced Disposal Services, Inc. Disposal Capacity Certification Letter, September 13, 2001 and Georgia Environmental Protection Division List of 2003 Landfill Remaining Capacity.
 Republic Services of Georgia Disposal Capacity Certification Letter, March 29, 2004.

typically includes grit and other non-sludge waste, such as catch-basin trash, rocks, wood, branches, and gravel. The biosolids portion is handled by the City of Atlanta's Department of Watershed Management and is incinerated at the treatment plants. The ash from the incineration is sent to a brick facility for recycling as an amendment in the manufacturing of bricks. The remaining non-biosolids portion is handled by SWS and is disposed of through the landfills. In 2003, approximately 71,741 tons of sludge were incinerated, and approximately 46,984 tons were sent to Live Oak Landfill. Sludge is typically not considered a solid waste, but is discussed in this Plan to assist in disposal planning purposes.

5.2.1 Assessment

Although the City does not currently use thermal treatment technologies for the disposal of its solid waste, the City will consider and evaluate waste-to-energy solutions for the long-term management of its solid waste. These solutions are discussed in Section 5.3, Needs and Goals.

The City will continue to process yard trimmings for use as a boiler fuel for mills, for which it receives revenue. Although yard trimmings (or biomass) only have about 60 percent of coal's heating value, yard trimmings produce lower air emissions, are a renewable resource, and can be less expensive. The City will consider marketing to other mills and plants that desire to use processed yard trimmings for fuel.

Although the City has heard several public comments on establishing a composting program for collected yard waste, the City will not pursue this alternative at this time. The current yard-waste-processing program is less expensive to operate than a composting facility, and the City receives revenue for its processed yard trimmings. Even though finished compost could be sold, the capital and operational costs of a composting facility would outweigh the revenues received. Compost facilities require large amounts of land to operate, generate odors, and require labor intensive operation and maintenance. Due to the large amount of heat that is generated when organic mass starts degrading, there is also a potential for fires to start in large compost piles.

For sludge, the City will continue to incinerate the biosolids portion and recycle the ash. For the non-biosolids portion, the City will continue to utilize landfills for disposal. Since sludge comprises a large portion of the City's waste stream, the City will continue to manage the amount of sludge generation. Since this waste competes for landfill space, the City will continue to evaluate alternative disposal or recycling options for sludge and also ensure available landfill capacity.

5.3 Needs and Goals

The City believes that its current waste disposal practice of using privately owned landfills is adequate for the 10-year planning period. However, the City understands that the use of landfills are a short-term solution to the disposal of solid waste. Therefore, the City will consider and evaluate other disposal options and technologies to manage the long-term disposal of its solid waste. The following discussion focuses on feasible disposal options and technologies for the City, and does not discuss the siting of a solid waste handling facility. For a discussion on the siting of solid waste handling facilities, please refer to Section 6, Land Limitation Element, which discusses the siting process that both the City and private

entities will follow. It should also be noted that feasibility studies and evaluations will be conducted for these disposal options first, and do not provide any commitments to a chosen disposal technology.

The disposal options are listed below:

- Combustion Waste-To-Energy Solutions
- Regional Landfills
- Use of Transfer Stations to Support Regional Disposal Facilities
- Eco-Industrial Park

5.3.1 Combustion Waste-to-Energy Solutions

Two-combustion waste-to-energy solutions that the City will research and evaluate are mass-burn combustion and refuse-derived-fuel combustion. Both of these solutions provide energy from the combustion of municipal solid waste. The technologies can significantly reduce the amount of waste that is disposed to landfills (almost 90 percent by volume), but poses cost, siting, and public opposition issues.

Waste-to-Energy solutions can handle most types of solid waste from the City of Atlanta, except for C&D debris, which typically hinders the optimum combustion levels desired.

5.3.1.1 Mass Burn Combustion (New Program)

5.3.1.1.1 Description

Mass-burn combustion is the most common waste-to-energy technology used in the U.S. The process involves the burning of waste as it is received with no processing prior to incineration. The heat from the combustion is typically used to generate steam or electricity onsite or for sale offsite to an industrial customer. Approximately 100 mass burn facilities operate in the U.S., including one large waste-to-energy facility in Chatham County, Georgia. The Chatham County facility receives about 310 tons per day of municipal solid waste from the City of Savannah.

Mass-burn facilities typically carry these components:

- A waste feed system
- A combustion chamber with a moving hearth to transport burning refuse and ash through the chamber
- A heat recovery boiler (and often a turbine-generator)
- An air pollution control system to treat gases resulting from combustion (flue gases)

A typical mass-burn facility would require a 5- to 10-acre site and high initial capital costs for construction. Estimated costs for a typical mass burn facility are detailed below:

- Capital cost, median estimate = \$480 million
- Operations and maintenance cost = \$37 million
- Revenue = \$26 million

After amortizing the capital costs and factoring in operating and maintenance costs and revenue, a typical mass burn facility would require an approximate tipping fee ranging

from \$60 to \$80 per ton. The City of Atlanta currently pays around \$30 per ton using transfer stations and landfills. The economics of operating a mass-burn facility can also be affected by risk, market, overhead, litigation, and host fees. Due mainly to air emission regulations and siting difficulties, no new mass burn facilities have been built in the U.S. over the last 10 years.

5.3.1.1.2 Advantages and Disadvantages

Advantages of using a mass-burn facility include:

- Reduction in landfill disposal requirements (almost 90 percent volume reduction)
- Proven technology
- Opportunity to apply new systems and technologies
- Energy recovery and sales

Disadvantages of using a mass-burn facility include:

- Public opposition and difficulty in siting
- High initial cost with high associated tipping fees to continue operation
- Lengthy construction and startup period, several years in duration, which is often prolonged by litigation
- Discharge of pollutants through air emissions (Atlanta is in a non-attainment zone)
- Need for ash disposal capacity

5.3.1.2 Refuse-Derived Fuel (New Program)

5.3.1.2.1 Description

Refuse-derived fuel (RDF) is a solid fuel produced by the mechanical pre-processing of municipal solid waste. The technology is based on the premise that waste combustibility can be improved by processing the waste prior to burning. The processing removes some noncombustible materials, makes the waste more homogeneous, and thus makes it easier to work with and more consistent in its heat generation.

RDF has a higher heating value than unprocessed, mixed municipal solid waste. When compared to soft coal, RDF has about half the heating value and can be used as a combustion fuel for boilers, furnaces, and fluidized bed units and kilns. Often, RDF is cofired with another type of conventional fuel, such as wood, coal, oil, or natural gas. An RDF facility may sell its fuel offsite for incineration at another facility such as an electric power plant, or may burn the fuel onsite in a dedicated boiler.

The purpose of RDF processing is to remove noncombustible components from the municipal solid waste. This increases the heat value of the RDF, produces a smaller quantity of ash than is generated at a mass burn facility, and potentially produces less heavy metal contamination in the facility emissions. The noncombustible components of municipal solid waste are primarily metals and glass. Items such as paper, cardboard, and plastic contribute to a high heating value for the RDF product.

RDF facilities include a municipal solid waste receiving and storage area, front-end processing area, and product handling and storage areas. The production of RDF typically includes shredding, breaking up bulk material, screening to remove grit and glass, air classification to separate the light-weight fuel portion (such as paper and cardboard) from

the heavy materials (primarily noncombustibles), and final processing into the desired shape, hardness, density, and percent of extraneous material.

The average RDF plant size capacity is approximately 1,500 tons per day of processed municipal solid waste. Twelve RDF facilities are in operation in the U.S. RDF plants incur high initial capital costs involved with construction. Estimated costs for a typical RDF facility are detailed below:

- Capital cost, median estimate = \$460 million
- Operations and maintenance cost = \$44 million
- Revenue = \$13 million

After amortizing the capital costs and factoring in operating and maintenance costs and revenue, a typical RDF facility would require an approximate tipping fee of \$110 per ton. The City of Atlanta currently pays around \$30 per ton using transfer stations and landfills. The economics of operating a RDF facility can also be affected by risk, market, overhead, litigation, and host fees.

5.3.1.2.2 Advantages and Disadvantages

Advantages of using an RDF facility include:

- Proven technology
- Reduction in the need for landfill disposal capacity
- Opportunity to recover recyclable material and energy
- Revenue and sales from fuel
- Ability to blend fuels
- Lower air emissions than mass-burn combustion
- Lower ash-to-fuel ratio than mass-burn combustion
- Potential for use in existing boiler facilities

Disadvantages of using a RDF facility include:

- Difficulty in siting and public opposition
- High initial cost with high associated tipping fees to continue operation (RDF is more expensive than mass-burn facilities.)
- Discharge of pollutants through air emissions (Atlanta is in a non-attainment zone)
- Lengthy construction and startup period, several years in duration which can be prolonged by litigation
- Ash disposal issues
- Difficulty in marketing RDF as a fuel
- Processing costs sometimes exceed the benefit of the end product

It should be noted that RDF combustion facilities do not have to be built and operated within the City. The RDF produced at a local facility can be transported to plants that desire the fuel. Shipping and transportation costs will be affected, however.

5.3.2 Regional Landfills (New Program)

To handle the future disposal of its solid waste, the City will evaluate the feasibility of utilizing regional landfills. The City will evaluate using privately owned landfills,

contracting with another local government, or developing their own landfill outside of the City. To account for long-distance hauling costs to regional landfills, the City can use transfer stations to support cost-effective shipments to these distant facilities.

The types of waste from the City of Atlanta that landfills can accept, include MSW, residential waste, commercial/institutional waste, land clearing materials, sludge, industrial solid waste, and industrial process waste. MSW landfills cannot accept hazardous and unacceptable waste as defined by federal and State regulations.

MSW landfills can accept C&D debris; however, it is typically accepted at a higher tipping fee when compared to dedicated C&D landfills.

5.3.2.1 Description

The nationwide trend in solid waste disposal is toward the construction of larger, more remote, regional landfills. Regulatory, social, political, geographical, and economic forces have been compelling factors leading to this result. Federal regulations passed in 1991 established new design requirements for municipal solid waste landfills. Many communities found the cost of upgrading existing facilities or constructing new landfills to be prohibitively high, and opted to close existing facilities. For these communities, transferring waste to a large regional landfill was an appealing alternative.

In addition to regulatory requirements, public opposition frequently makes siting new landfills near population centers difficult. Also, adequate land is often not available near densely populated or urban areas.

Economic considerations, especially economies of scale, further promote development of large regional facilities. To offset the high cost of constructing and maintaining a modern landfill, facility owners construct large facilities that attract high volumes of waste from a greater geographic area. By maintaining a high volume of incoming waste, landfill owners can keep the per-ton tipping fees low, which subsequently attracts more business. Rural and urban communities alike are finding that an economically viable solution to their waste disposal needs is shipping their waste to these facilities. In these circumstances, a transfer station serves as the critical consolidation link in making cost-effective shipments to these distant facilities.

Estimated costs for a new Class I landfill with a capacity of 2,500 tons per day of solid waste are detailed below:

- Capital cost = \$192 million
- Operations and maintenance cost = \$4.7 million
- Post-closure cost = \$1 million

5.3.2.2 Advantages and Disadvantages – Regional Landfills

Advantages of using a regional landfill include:

- Avoidance of siting and public opposition issues within the City
- Potential economy-of-scale cost savings
- Provides potential long-term disposal capacity
- Flexibility in controlling waste that is delivered to a City-owned landfill

Disadvantages of using a regional landfill include:

- Loss of control of disposal if using a privately owned landfill
- Potential for increased liability for using a privately owned landfill
- Loss of control of future tipping fees at a privately owned landfill
- Difficulty in siting and public opposition of a new regional landfill
- Potential for air and water quality impacts

5.3.3 Use of Transfer Stations to Support Regional Disposal Facilities (New Program)

To support hauling to a regional disposal facility, the City can utilize either a privately run transfer station, or develop its own. A transfer station is a facility with a designated receiving area where waste collection vehicles deliver the collected waste. The waste is often compacted, then loaded into larger vehicles (usually transfer trailers, intermodal containers, railcars, and barges) for long-haul shipment to a final disposal site—typically a landfill, waste-to-energy plant, or composting facility. No long-term storage of waste occurs at a transfer station; waste is quickly consolidated and loaded into larger vehicles and moved offsite, usually in a matter of hours.

The City currently uses two transfer stations under short-term renewable contracts for the transfer of its collected solid waste. Because these transfer stations are privately owned, the stations determine the cost of the tipping fees and where the solid waste is disposed. Although several stipulations can be written into the City's contracts with these transfer stations, the City could maintain better control of its solid waste and associated costs if the transfer stations were owned by the City.

The use of transfer stations can also help reduce the maintenance of the City's collection vehicles, due to reduced transportation time. Instead of hauling waste long distances to a single landfill, the City can utilize multiple transfer stations that are close in proximity to the routes or substations. This can reduce transportation and fuel costs, can reduce vehicle maintenance and wear, and can increase productivity and efficiency.

5.3.3.1 Advantages and Disadvantages – Transfer Stations

During the 10-year planning period, the City will evaluate the feasibility of developing City-owned transfer stations. The primary reason for using a transfer station is to reduce the cost of transporting waste to distant disposal facilities. Consolidating smaller loads from collection vehicles into larger transfer vehicles reduces hauling costs by enabling collection crews to spend less time traveling to and from distant disposal sites, and more time collecting waste. This also reduces fuel consumption and collection vehicle maintenance costs, and produces less overall traffic, air emissions, and road wear.

In addition, a transfer station also provides:

- An opportunity to screen waste prior to disposal
- Flexibility in selecting waste disposal options
- An opportunity to serve as a convenience center for public use

At a City-owned transfer station, workers would screen incoming wastes on the tipping floors or in receiving pits. Waste screening has two components: separating recyclables from the waste stream, and identifying any wastes that might be inappropriate for disposal (such as hazardous wastes or materials, white goods, whole tires, auto batteries, or infectious waste). Identifying and removing recyclables reduces the weight and volume of waste sent for final disposal and, depending on local recycling markets, may generate revenue. Screening for inappropriate wastes is more efficient at the transfer station than the landfill or other disposal facility.

City-owned waste transfer stations would offer more flexibility in terms of disposal options. The City could select the most cost-effective and/or environmentally protective disposal sites, even if they are more distant. The City could consider multiple disposal facilities, secure competitive disposal fees, and choose a desired method of disposal (such as landfilling or incineration). The City would also have more control of disposal costs, since it would contract directly for the disposal of its waste.

Finally, a City-owned transfer station could include multi-purpose convenience centers open to public use. These centers would enable individual citizens to deliver waste directly to the transfer station facility for ultimate disposal or recycling. A City-operated convenience center could also offer programs to manage yard waste, bulky items, household hazardous waste, and tires; and would recycle these types of wastes if possible. Convenience centers would assist the community in achieving recycling goals, increasing the public's knowledge of proper materials management, and diverting materials that would otherwise burden existing disposal capacity.

The main disadvantages and obstacles to a City-owned transfer station are facility siting and public opposition. Transfer stations also may pose unsightly visual, noise, odor, and litter issues. Depending on the existing road infrastructure, transfer stations may also increase traffic in the area. Due to the increased development of existing industrial areas into residential zones, there may be limited areas where transfer stations could be sited.

To help mitigate potential public opposition to City-owned transfer stations, the City would involve the public in all steps of the decision-making process—from the decision to build or site a transfer station, to the design and functionality of the transfer station. City-owned transfer stations would include convenience and recycling centers for residents, and would follow the procedures in Section 6, Land Limitation Element, to minimize any impacts from building and siting a transfer station. The City would also focus on any community-specific criteria, including environmental justice considerations, air quality, impacts on the local infrastructure, adjacent land uses, other environmental stressors that may already exist, and proximity to schools, churches, recreation sites, and residences.

Also to help alleviate public opposition, host community agreements could be established between the City and the community hosting the transfer station. These agreements typically specify design requirements, operating restrictions, oversight provisions, and other services and benefits that the immediate community would receive. Some examples of these provisions include:

- Steps to reduce negative environmental impacts in the immediate area
- Limitations on waste-generation sources

- Roadside cleanup of litter on access routes
- Restrictions on facility operating hours
- Restrictions on vehicle traffic routes
- Assistance with recycling and waste diversion
- A fee paid to the local community for every ton of waste received at the facility
- Free or reduced-cost use of the facility for the community's residents and businesses
- Tax incentives for the community
- Guaranteed preference to the community's residents for employment at the facilities
- Funding for road or utility improvements
- Financial support for other community-based activities

5.3.4 Eco-Industrial Park (New Program)

5.3.4.1 Description

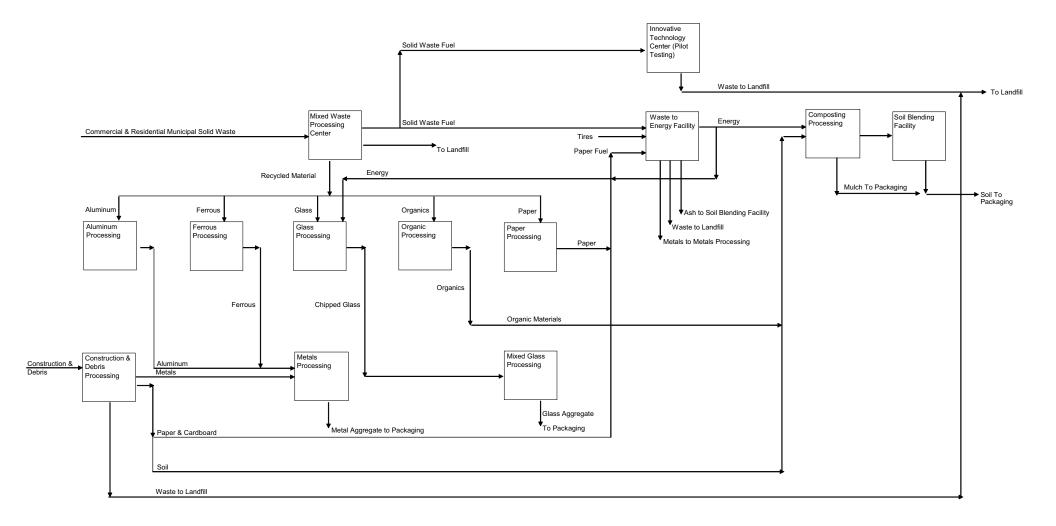
An Eco-Industrial Park (or Eco-Park) is a group of businesses that work together and with the community to efficiently share resources (materials, water, energy, infrastructure, natural habitat, and information), enhance economic prosperity, and improve the environment. Eco-Parks rely on concepts such as by-product synergy (reuse of waste material as a feedstock to another industrial process), waste exchange, green energy, green buildings, and mass transit. Green building designs use energy and resource efficiency, waste reduction, and pollution prevention practices, indoor air quality standards, and other environmental initiatives in the construction of new buildings and/or refurbishment of existing ones. Eco-Parks are not a stand-alone technology, rather they are a combination of processing and treatment technologies that separate or convert waste for reuse and reprocessing.

Eco-Parks can handle all types of solid waste from the City of Atlanta, and will be dependent upon the combination and configuration of the different processing and treatment technologies utilized.

Eco-Parks often offer some public incentive such as reduced taxes, public land leases, and public endorsement of the businesses. The parks are arranged to foster sustainable business arrangements and sustainable practices for the entire community. They generally consume less energy and fewer raw materials, produce less waste and pollution, and provide an inviting workplace and integration with the surrounding community. They often rely on groups of technologies that work together with the community to efficiently share resources and improve the environment in comparison to more conventional arrangements.

Figure 5-1 presents an example process flow diagram of an Eco-Park configuration.

Several business models and arrangements may be considered in designing an Eco-Park. One example would be an Eco-Park that invites reuse, recycling, and composting businesses to collocate in one area. In these instances, areas with reuse, recycling, and composting businesses as the main focus become known as a "Resource Recovery Park." A Resource Recovery Park is a co-location of reuse, recycling, and composting processing, manufacturing, and retail businesses in a central facility to which the public can bring all wastes and recoverable materials. A Resource Recovery Park enables the public to decrease







their waste disposal costs, recover some value from their discards, and buy other items at bargain prices. A Resource Recovery Park would enable participating businesses to share space and facilities; operating equipment (such as forklifts, balers, shredders, loaders, and trucks); technical, administrative, and professional services; promotions and advertising; communications equipment and services (e.g., copiers, computers, Web sites, fax, radios, phones); staff recruitment and training; and educational facilities and services.

Another example would be an Eco-Park for manufacturers and distributors that make sustainable products. The purpose of the park would be to attract buyers to the park through the co-location of like businesses. A brokered distribution center in the renewable energy sector, for example, could sell bio-diesel, bio-based compressed natural gas, ethanol, bio-oil (from pyrolysis), and hydrogen. Another complex could sell green building materials.

Resource Recovery Parks can be developed in numerous ways:

- Zoning a district within a community specifically for such businesses
- Siting these businesses on or around a landfill or transfer station
- Renovating one or more abandoned buildings or industrial sites (such as a brownfield or military base) for such businesses
- Co-promoting nearby reuse, recycling, and composting businesses
- Develop a master plan to attract desired types of businesses to available sites

Some Resource Recovery Parks are developing as a natural clustering of reuse, recycling, and composting businesses on the site of, or around, a landfill or transfer station. Alternatively, other sites, such as brownfield sites or abandoned buildings, could serve as a site for a Resource Recovery Park.

Resource Recovery Parks do not have to be large in scale, and could succeed on a smaller scale in a rural area or an urban brownfield. Small-scale Resource Recovery Parks focus on attracting appropriately sized reuse, recycling, and composting businesses that meet local needs.

To develop an Eco-Park, special land-use designations, zoning, permitting, development conditions, and operating permits may be required. Innovation at Eco-Parks is important, however, so a process should be in place to allow proponents to propose alternative requirements for consideration. In general, it would take approximately 4 to 6 years to site, design, permit, and construct an Eco-Park.

Tenants of the Eco-Park should be qualified as appropriate for the park through a transparent review process. Incentives could be created through land lease, tax credits or deferments, public promotion, and leading-edge park design. Disincentives could be created to prevent poor environmental performance, high resource consumption, or high wastewater and waste production in these parks.

Currently the City operates the Hartsfield Solid Waste Reduction Plant, which is used to process yard waste through chipping and grinding for use as boiler fuel. This facility and the surrounding area could be expanded into a Recycling Recovery Park. This park could include other recycling recovery and materials recovery uses.

The City will research and evaluate the feasibility of hosting and developing Eco-Parks in Atlanta as a future, long-term management solution for its solid waste.

5.3.4.2 Advantages and Disadvantages

Advantages of Eco-Parks include:

- Dramatic environmental benefits in air, water, material, and energy resource use
- Educational opportunities for the entire community
- By-product synergy
- Sales synergy
- Markets established for recycled products, services, and sustainable products that might not flourish without a catalyst like the Eco-Park concept

Disadvantages of Eco-Parks would be facility siting and public opposition. Waste processing operations may also pose unsightly visual, noise, odor, and litter issues. Depending on the existing road infrastructure, facilities may also increase traffic in the area. Due to the increased development of existing industrial areas into residential zones, there may be limited areas in the City where facilities could be sited. Other disadvantages include:

- Standards of performance must be created before tenants are selected.
- Public reporting is critical to community acceptance.
- Vacating or terminating a non-compliant business may be difficult.
- Economic success depends upon the tenants' success and current markets.